

**Amendments to the Specification:**

On Page 1, after line 9 insert the following new section:

**GOVERNMENT RIGHTS**

The U.S. Government may have certain rights to this invention under the terms of Contract Number DAAD13-03-C-0047 granted by the Department of Defense.

Please replace the paragraph at page 15, lines 17-25 with the following amended paragraph:

Biosensors employing acoustic mechanical means and components of such biosensors are known. See, for example, U.S. Patent Nos. 5,076,094; 5,117,146; 5,235,235; 5,151,110; 5,763,283; 5,814,525; 5,836,203; 6,232,139. SH-SAW devices can be obtained from various manufacturers such as Sandia National Laboratories, Albuquerque, NM. Certain SH-SAW biosensors are also described in "Low-level detection of a *Bacillus anthracis* stimulant using Love-wave biosensors of 36°YXLiTaO<sub>3</sub>," Biosensors and Bioelectronics, 19, 849-859 (2004). SAW biosensors, as well as methods of detecting biological agents, are also described in U.S. Patent Application Serial No. 60/533,169, filed December 30, 2003 and PCT Publication No. WO2005/075973.

Please replace the paragraph at page 16, lines 1-13 with the following amended paragraph:

Another class of compound suitable for use in the acoustic sensors of the present invention (typically, in the immobilization layer) include compounds with one or two functional groups represented by Formulas I, II, or IV, wherein each Y group (Y<sup>1</sup>, Y<sup>2</sup>, Y<sup>3</sup>) is bonded to a substrate reactive-functional group independently selected from the group consisting of a carboxy, halocarbonyl, halocarbonyloxy, cyano, hydroxy, mercapto, isocyanato, halosilyl, alkoxysilyl, acyloxysilyl, azido, aziridinyl, haloalkyl, tertiary amino, primary aromatic amino, secondary aromatic amino, disulfide, alkyl disulfide, benzotriazolyl, phosphono, phosphoroamido, phosphato, ethylenically unsaturated group, and combinations thereof. An exemplary immobilization layer includes N-(11-trichlorosilylundecenoyl)saccharin. Such

compounds are disclosed in Applicants' Assignee's ~~Copending U.S. Patent Applications Serial Nos. 7,361,767, 7,169,933, 7,423,155 and 7,179,923~~ 10/714,053 and 10/713,174 filed on 14 November 2003, and Serial Nos. ~~10/987,075 and 10/987,522~~ filed on 12 November 2004.

Please replace the paragraphs starting at page 50, line 9 to page 51, line 17 with the following amended paragraphs:

The functionally substituted amine capture agents of Applicants' ~~Copending U.S. Patent Applications Serial Nos. 7,361,767, 7,169,933, 7,43,155 and 7,179,923~~ 10/714,053 and 10/713,174 filed on 14 November 2003, and Serial Nos. ~~10/987,075 and 10/987,522~~ filed on 12 November 2004, can be used to make the multifunctional compounds of the present invention. This can be done by attaching such compounds to a core Q group bearing y complementary functional groups to give the multifunctional amine capture agents of the present invention. For example,  $\text{ClC(O)C}_6\text{H}_4\text{SO}_2\text{N(C(O)CH}_2)_2$  can be reacted with a diol such as polyethylene glycol, or a triol such as trimethylolpropane ethoxylate. Also, a silane such as  $(\text{EtO})_3\text{SiC}_{10}\text{H}_{22}\text{C(O)-saccharin}$  can be pre-reacted with tetraethoxysilane to form a sol-gel condensate including multiple amine capture acyl saccharin groups. Alternatively, the amine capture group can be formed at the terminus of a multifunctional Q group by the reactions illustrated in the Applicants' ~~Copending U.S. Patent Applications Serial Nos. 7,361,767, 7,169,933, 7,423,155 and 7,179,923~~ 10/714,053 and 10/713,174 filed on 14 November 2003, and Serial Nos. ~~10/987,075 and 10/987,522~~ filed on 12 November 2004. For example, a Q group-containing multifunctional acid chloride can be reacted with sodium saccharin, or a Q group-containing multisulfonamide can be reacted with succinoyl chloride.

#### Functionalized Compounds with Substrate Reactive Groups

Another class of compound suitable for use in the acoustic sensors of the present invention (typically, in the immobilization layer) include compounds with one or two functional groups represented by Formulas I, II, or IV, wherein each Y group ( $\text{Y}^1$ ,  $\text{Y}^2$ ,  $\text{Y}^3$ ) is bonded to a substrate reactive-functional group independently selected from the group consisting of a carboxy, halocarbonyl, halocarbonyloxy, cyano,

hydroxy, mercapto, isocyanato, halosilyl, alkoxysilyl, acyloxysilyl, azido, aziridiny, haloalkyl, tertiary amino, primary aromatic amino, secondary aromatic amino, disulfide, alkyl disulfide, benzotriazolyl, phosphono, phosphoroamido, phosphato, ethylenically unsaturated group, and combinations thereof. An exemplary immobilization layer includes N-(11-trichlorosilylundecenoyl)saccharin. Such compounds are disclosed in Applicants' Assignee's ~~Copending U.S. Patent Applications~~ Serial Nos. 7,361,767, 7,169,933, 7,423,155 and 7,179,923 ~~10/714,053 and 10/713,174 filed on 14 November 2003, and Serial Nos. 10/987,075 and 10/987,522 filed on 12 November 2004.~~

Please replace the paragraph at page 59, lines 7-20 with the following amended paragraph:

As used with acoustic sensors, materials described herein may be deposited by any suitable technique or method. Typically, it may be preferred that such materials be delivered to a substrate in a carrier liquid, with the carrier liquid (e.g., ethyl acetate, propyl acetate, 2-butoxy ethyl acetate, toluene, N-methyl-2-pyrrolidone, 2-ethoxy ethyl acetate, butyl acetate, methyl ethyl ketone, ethanol, isopropyl alcohol, water, and mixtures thereof) and the materials forming, e.g., a solution or a dispersion. When so delivered, examples of some suitable deposition techniques for depositing the materials on a surface may include, but are not limited to, flood coating, spin coating, printing, non-contact depositing (e.g., ink jetting, spray jetting, etc.), chemical vapor deposition coating, pattern coating, knife coating, etc. It may be preferred, in some embodiments, that the deposition technique has the capability of pattern coating a surface, i.e., depositing the materials on only selected portions of a surface, such as the coating process described in U.S. Patent ~~Application~~ Serial No. 7,175,876 ~~10/607,698, filed June 27, 2003.~~

Please replace the paragraph starting at page 60, line 30 to page 61, line 3 with the following amended paragraph:

Additional discussion related to various detection systems and components (such as detection cartridges including biosensors) may be found in, e.g., U.S. Patent Application No. 60/533,169, filed December 30, 2003; PCT Publication

No. WO2005/075973 ~~Application No. \_\_\_\_\_~~ entitled "Acousto-Mechanical Detection Systems and Methods Of Use," ~~filed on even date herewith (Attorney Docket No. 59468WO003);~~ and PCT Publication No. WO2005/064349 ~~Application No. \_\_\_\_\_~~ entitled "Detection Cartridges, Modules, Systems and Methods[[],]" ~~filed on even date herewith (Attorney Docket No. 60342WO003).~~

Please replace the paragraph at page 62, lines 5-16 with the following amended paragraph:

Examples of techniques for driving and monitoring acousto-mechanical sensors such as those that may be used in connection with the present invention may be found in, e.g., U.S. Patent Nos. 5,076,094 (Frye et al.); 5,117,146 (Martin et al.); 5,235,235 (Martin et al.); 5,151,110 (Bein et al.); 5,763,283 (Cernosek et al.); 5,814,525 (Renschler et al.); 5,836,203 ((Martin et al.); and 6,232,139 (Casalnuovo et al.), etc. Further examples may be described in, e.g., Branch et al., "Low-level detection of a *Bacillus anthracis* simulant using Love-wave biosensors on 36°YX LiTaO<sub>3</sub>," Biosensors and Bioelectronics, 19, 849-859 (2004); as well as in U.S. Patent Application No. 60/533,177, filed on December 30, 2003, and PCT Publication No. WO2005/066622 ~~Application No. \_\_\_\_\_~~, entitled "Estimating Propagation Velocity Through A Surface Acoustic Wave Sensor[[],]" ~~filed on even date herewith (Attorney Docket No. 58927WO003).~~

Please replace the paragraph at page 71, lines 11-23 with the following amended paragraph:

Further descriptions of systems and data analysis techniques that may be used in connection with the present invention may be described in, e.g., U.S. Patent Application No. 60/533,177, filed on December 30, 2003, and PCT Publication No. WO2005/066622 ~~Application No. \_\_\_\_\_~~, entitled "Estimating Propagation Velocity Through A Surface Acoustic Wave Sensor[[],]" ~~filed on even date herewith (Attorney Docket No. 58927WO003).~~ Other data analysis techniques to determine the presence (or absence) of target biological analytes using sensors of the invention may also be used, e.g., time domain gating used as a post-experiment noise reduction filter to simplify phase shift calculations, etc. Still other potentially useful data analysis

techniques may be described in the documents identified herein relating to the use of acoustic sensors. Although systems and methods related to the use of surface acoustic wave sensors are described therein, it should be understood that the use of these systems and methods may be used with other acousto-mechanical sensors as well.